

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mason Atty Dkt: 2731/103  
Serial No: 10/767,637 Art Unit: 3733  
Date Filed: January 29, 2004 Examiner: A. R. Reimers

Invention: Method for Graftless Spinal Fusion

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**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the Efile system on September 28, 2006.

/John L. Conway, #48,241/

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**RESPONSE G**

Dear Sir:

In response to the Office Action mailed on July 14, 2006 and made final,  
Applicant responds as follows:

In the claims:

This listing of claims will replace all prior versions of claims and listings of claims in the application.

Please cancel claim 6.

What is claimed is:

- 1) (previously presented) A method for fusing a first vertebra to a second adjacent vertebra, the method comprising:
  - a) providing an implant, the implant comprising a body having first and second opposite surfaces, wherein each of the surfaces includes at least one protruding member for securing the body to an adjacent vertebra, each protruding member of the implant characterized by a member longitudinal axis, each member having a profile perpendicular to the member's longitudinal axis that includes a generally arcuate portion that encompasses more than one hundred and eighty degrees of curvature as measured from the center of curvature, and each of the surfaces and protruding members including a bioactive coating;
  - b) forming at least one keyway in the first vertebra corresponding to each of the at least one protruding members on the first surface, and at least one keyway in the second vertebra corresponding to each of the at least one protruding members on the second surface, wherein each keyway is characterized by a keyway longitudinal axis and has a profile perpendicular to the keyway's longitudinal axis including a generally

arcuate portion that encompasses more than one hundred and eighty degrees of curvature as measured from the center of curvature;; and

- c) inserting the implant between the first vertebra and the second vertebra in a manner so that each protruding member slides into the corresponding keyway;

such that movement between the implant and the first vertebra along any perpendicular to the longitudinal axis of the at least one keyway in the first vertebra is prevented.

- 2) (original) A method according to claim 1, wherein at least one of the opposite surfaces of the implant includes a plurality of protruding members.

3-6) (cancelled).

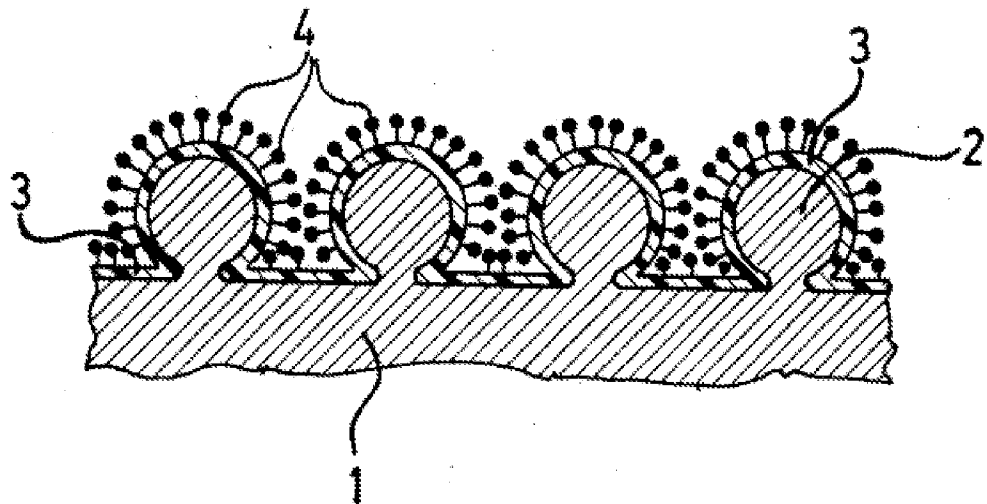
### Remarks

Claims 1 and 2 are pending in the application. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller-Lierheim (US Patent Number 4,828,563).

### Claim Rejections --- 35 U.S.C. §102(b)

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller-Lierheim '563.

Muller-Lierheim '563 teaches applying a surface coating of growth factors to an implant to enhance biocompatibility. (See, e.g., Muller-Lierheim '563 abstract; col. 1, lines 17-34.) The Muller-Lierheim '563 reference contains only a single drawing, which is reproduced below:



Likewise, the only description of the drawing is provided in col. 3, lines 19-39 of Muller-Lierheim '563 which purports to show "a part of an implant which may be for example in the form of a hip joint implant." Further, Muller-Lierheim '563 describes the implant as follows:

"The base body 1 of the implant comprises a plurality of anchoring projections 2 which serve to give an improved anchoring effect and also to increase the area of the surface of the implant. **The projections 2 may be for example in the form of ball portions which are sintered on to the base body 1.** The projections may also be of a different form, in which respect it is advantageous for them to be of such a configuration as to define undercut portions, as can be seen in the drawing. The undercut configurations ensure a strong anchoring effect in respect of the polymer layer and also the cells by way of which the implant is to be connected to the surrounding tissue." (Muller-Lierheim '563, col. 3, lines 26-39, emphasis added.).

Claim 1 of the subject application requires in part:

...

- a) providing an implant, the implant comprising a body having first and second opposite surfaces, wherein each of the surfaces includes at least one protruding member for securing the body to an adjacent vertebra, each protruding member of the implant characterized by a member longitudinal axis, each member having a profile perpendicular to the member's longitudinal axis that includes a generally arcuate portion that encompasses more than one hundred and eighty degrees of curvature as measured from the center of curvature, and each of the surfaces and protruding members including a bioactive coating;
- b) forming at least one keyway in the first vertebra corresponding to each of the at least one protruding members on the first surface, and at least one keyway in the second vertebra corresponding to each of the at least one protruding members on the second surface, wherein each keyway is characterized by a keyway longitudinal axis and has a profile perpendicular to the keyway's longitudinal axis including a generally arcuate portion that encompasses more than one hundred and eighty degrees of curvature as measured from the center of curvature...

As the quoted passage from Muller-Lierheim '563 shows, Muller-Lierheim '563 at most teaches using "balls" as projections on hip joint implants. Further, Muller-Lierheim '563 is silent as to how such implants are to be used.

Thus, Muller-Lierheim '563 does not teach, disclose or even suggest at least the following required limitations of claim 1:

- providing an implant with protruding members on opposing surfaces of the implant; or
- forming a keyway in a vertebra to receive protruding members of the implant.

Because Muller-Lierheim '563 does not teach required limitations of claim 1, Muller-Lierheim '563 cannot anticipate claim 1. Claim 2, which depends from claim 1 and adds further limitations, is deemed not anticipated by Muller-Lierheim '563 for at least the same reasons as for claim 1. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also MPEP § 2131.

For the reasons set forth above, it is submitted that all pending claims are now in condition for allowance. Reconsideration of all pending claims and a notice of allowance are therefore requested. If any additional fees are required for the timely consideration of this application, please charge deposit account number 19-4972. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

Respectfully submitted,

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